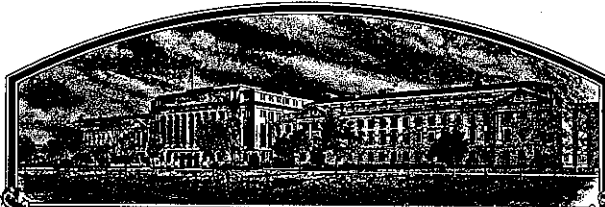


No.

8500024



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

King Grain U.S.A., Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY, AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (T. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'KG70'



Attest:

Kenneth B. Edwards
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 28th day of February in the year of our Lord one thousand nine hundred and eighty-six.

F. W. Taylor
Acting Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

APPROVAL EXPIRES 4-30-86

FORM APPROVED: OMS NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) King Grain U.S.A., Inc.		2. TEMPORARY DESIGNATION KG2168		3. VARIETY NAME KG70	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 719 Center St., East Aurora, N.Y. 14052, U.S.A.		5. PHONE (Include area code) (716)655-1310		FOR OFFICIAL USE ONLY PVPO NUMBER 8500024	
6. GENUS AND SPECIES NAME Glycine max		7. FAMILY NAME (Botanical) Leguminosae		FILING DATE 12/3/84 TIME 2:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.	
8. KIND NAME Soybeans		9. DATE OF DETERMINATION 1979		FEES RECEIVED AMOUNT FOR FILING \$ 1,800 DATE 12/3/84 AMOUNT FOR CERTIFICATE \$ DATE	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation				12. DATE OF INCORPORATION December 10, 1982.	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION New York					

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

Bernard M. Leese, Jr.,
Underwood Agribusiness Assoc.,
210 Kimblewick Dr.,
Silver Spring, MD. 20904, U.S.A.
Telephone # (301)622-3757
Telex: 296415

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

- a. ☒ Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
b. ☒ Exhibit B, Novelty Statement
c. ☒ Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
d. ☐ Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) ☐ Yes (If "Yes," answer Items 16 and 17 below) ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ Yes ☒ No
17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? ☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? ☐ Yes (If "Yes," give date) ☒ No

19. HAS THE VARIETY BEEN OFFERED FOR SALE OR MARKETING IN THE U.S. OR OTHER COUNTRIES? ☐ Yes (If "Yes," give names of countries and dates) ☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT King Grain U.S.A., Inc. per P. Leese	DATE October 22, 1984.
SIGNATURE OF APPLICANT	DATE

EXHIBIT 'A'

Origin and Breeding History of the Variety

- 1) KG70 (KG2168) was developed by King Grain Limited, Chatham, Ontario. The variety originated from a hand-pollinated cross of Evans x Marion made in 1977. The F1, F2 and F5 generations were grown in Ontario and the F3 and F4 grown in Belize, Central America. Early generations were advanced using a modified single seed descent technique. KG70 was F5 derived and was yield tested in 1982-83.
- 2) In 1979, single plants of the variety were reselected and grown in plant rows in 1980. Only the rows conforming to a standard were harvested and bulked. The genetic make-up of the variety was uniform and stable in the eighth generation.
- 3) KG70 has been in yield trials since 1982. See attached.

ONTARIO SOYBEAN VARIETY TRIALS - 3100 HEAT UNIT AREA
MEAN OF RIDGETOWN, INWOOD, FINGAL - 1982

Entry	Yield -kg/ha-	Rank	Maturity D.A.P.*	Plant Ht. -cm-	Bottom Pod Ht. -cm-	Lodging** (1 - 5)	100 Seed Wt. -g-	Seed Quality***
Evans	2969	40	123	74	8.3	1.2	15.8	2.0
Gesto	2834	42	124	74	8.3	1.7	15.2	2.0
Hodgson	3360	14	130	84	8.8	1.5	16.2	2.0
A1564	3202	30	131	92	8.5	1.7	17.5	2.0
Pioneer 1677	3387	12	136	85	8.7	2.2	14.3	2.0
Coles	3197	31	136	99	7.9	2.6	19.6	2.3
SL346	3303	23	135	69	8.7	1.3	18.1	1.7
Hawk	3441	7	137	77	9.1	2.6	17.9	2.0
Prestige	3059	36	130	85	7.1	2.2	17.0	2.0
Wells	3230	27	136	86	9.5	1.0	15.8	2.0
A2575	3517	2	139	96	11.4	1.5	16.2	1.7
Kentland	3389	11	140	87	9.8	2.3	15.7	2.3
Premier	3341	17	140	85	8.9	1.8	17.4	2.0
S-2596	3421	8	142	84	10.5	1.5	18.7	2.0
Starlite	3340	19	142	95	9.3	3.0	15.9	2.0
Harcor	3455	6	141	98	10.1	3.2	15.2	2.0
A1937	3462	5	134	86	8.4	1.7	16.8	2.0
DSR 171	3349	15	137	93	10.1	2.2	15.7	2.7
Jacques J88	3409	9	132	80	9.4	1.5	16.6	2.3
Jacques E8287	3237	26	133	79	10.2	1.5	15.5	2.3
PR 119403	3349	16	139	86	8.1	2.2	15.2	2.0
King 18104	3110	34	135	81	7.0	1.8	17.6	2.0
King 2168	3277	24	129	86	9.0	1.2	17.5	2.0
AP10	3307	21	130	81	8.3	2.0	16.4	2.0
FS 797	3108	35	133	90	8.9	1.8	15.4	2.3
OX670	2868	41	142	96	11.2	3.8	13.7	2.0
Vinton 81	3217	28	140	87	9.7	2.0	23.9	2.0
LSC 3465	3156	32	135	91	9.5	1.9	18.8	2.0
LSC 17898	2991	38	137	79	8.4	1.6	16.8	2.0
XP 1695	3473	3	134	78	9.4	1.4	18.4	2.0
N.K. X130407	3534	1	133	71	8.5	1.4	16.4	2.0

8500024

...2...

ONTARIO SOYBEAN VARIETY TRIALS (CONTINUED)

Entry	Yield -kg/ha-	Rank	Maturity D.A.P.*	Plant Ht. -cm-	Bottom Pod Ht. -cm-	Lodging** (1 - 5)	100 Seed Wt. -g-	Seed Quality***
N.K. X120004	3466	4	136	85	9.0	1.8	16.7	2.0
N.K. X701043	3271	25	132	78	7.8	1.1	15.9	2.0
N.K. X703041	3331	20	133	78	7.9	1.1	16.0	2.0
Pioneer 1981	3340	18	136	90	8.6	1.7	20.7	2.0
Pioneer 1282	3205	29	127	85	8.9	1.9	18.2	2.0
Pioneer 1082	2996	37	126	84	8.1	1.1	15.0	2.0
RCAT 82-01	3306	22	131	98	10.4	2.4	19.4	2.3
RCAT 82-02	3148	33	134	76	8.8	1.5	16.8	2.0
RCAT 82-03	2988	39	131	67	7.4	1.0	15.9	2.0
Thompson T8202	3371	13	134	88	11.2	1.6	15.5	2.0
Thompson T8006	3397	10	128	79	9.8	2.1	16.8	2.0
Mean	3265							

* D.A.P. = days after planting

** 1 - erect, 5 - flat

*** 1 - very good, 5 - very poor

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Michigan State University Trials

1982-83

<u>Entry</u>	<u>Yield (bu/a)</u>	<u>Maturity (days)</u>	<u>Lodging (1-5)</u>	<u>Height (cm)</u>	<u>Seed Size (gm/100)</u>
KG2168	45.5	9-23	1.3	85	19.0
Hodgson 78	46.8	9-25	1.4	83	17.4
Evans	43.5	9-23	1.2	78	16.7
Lakota	45.0	9-28	2.4	93	16.0

EXHIBIT 'B'

Novelty Statement

Novelty is based on the unique combination of the following characters:

KG70 is most similar to Hodgson 78 except KG70 is two days earlier, 2 cm taller and 1.6 gm per 100 seeds larger than Hodgson 78. KG70 has yellow hilum whereas Hodgson 78 is buff. KG70 oil content is 1% lower and protein 1.2% higher than Hodgson 78.

Michigan State University Trials
1982-83

Entry	Maturity (date)	Height (cm)	Seed Size (gm/100)	Hilum Color	Oil (%)	Protein (%)
KG2168	9-23	85	19.0	Y	19.0	40.5
Hodgson 78	9-25	83	17.4	Bf	20.0	39.3

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

R-913

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) King Grain U.S.A., Inc.	TEMPORARY DESIGNATION KG2168	VARIETY NAME KG70
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 719 Center St., East Aurora, N.Y. 14052, U.S.A.		FOR OFFICIAL USE ONLY PVPO NUMBER 8500024

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)

3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)

4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17').

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) _____

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1^a)

2 = Type B (SP1^b)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) _____

11. LEAFLET SIZE:

☒ 21 = Small ('Amsoy 71'; 'A5312')
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

12. LEAF COLOR:

☒ 21 = Light Green ('Weber'; 'York')
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

★ 13. FLOWER COLOR:

☒ 1

1 = White

2 = Purple

3 = White with purple throat

★ 14. POD COLOR:

☒ 2

1 = Tan

2 = Brown

3 = Black

★ 15. PLANT PUBESCENCE COLOR:

☒ 1

1 = Gray

2 = Brown (Tawny)

16. PLANT TYPES:

☒ 31 = Slender ('Essex'; 'Amsoy 71')
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

★ 17. PLANT HABIT:

☒ 3

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

★ 18. MATURITY GROUP:

☒ 0 ☒ 41 = 000
9 = VI2 = 00
10 = VII3 = 0
11 = VIII4 = I
12 = IX5 = II
13 = X

6 = III

7 = IV

8 = V

★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

★ ☒ 1 Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)★ ☒ 1 Bacterial Blight (*Pseudomonas glycines*)★ ☒ 1 Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

★ ☒ 1 Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojina*)★ ☒ 1 Race 1 ☒ 1 Race 2 ☒ 1 Race 3 ☒ 1 Race 4 ☒ 1 Race 5 ☐ Other (Specify)☐ Target Spot (*Corynespora cassicola*)☐ Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ Powdery Mildew (*Microsphaera diffusa*)★ ☒ 1 Brown Stem Rot (*Cephalosporium gregatum*)☐ Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

- ★ ☒ 1 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ Purple Seed Stain (*Cercospora kikuchii*)
- ☐ Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☒ 1 Race 1 ☒ 1 Race 2 ☒ 1 Race 3 ☒ 1 Race 4 ☒ 1 Race 5 ☒ 1 Race 6 ☒ 1 Race 7
- ☒ 1 Race 8 ☒ 1 Race 9 ☐ Other (Specify) _____

VIRAL DISEASES:

- ☐ Bud Blight (Tobacco Ringspot Virus)
- ☐ Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☒ 1 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ Pod Mottle (Bean Pod Mottle Virus)
- ★ ☒ 1 Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☒ 1 Race 1 ☒ 1 Race 2 ☒ 1 Race 3 ☐ 1 Race 4 ☐ Other (Specify) _____
- ☐ Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☒ 1 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☒ 1 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ OTHER DISEASE NOT ON FORM (Specify): _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☒ 1 Iron Chlorosis on Calcareous Soil
- ☐ Other (Specify) _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☒ 1 Mexican Bean Beetle (*Epilachna varivestis*)
- ☒ 1 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ Other (Specify) _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Hodgson 78	Seed Coat Luster	Hodgson 78
Leaf Shape	"	Seed Size	"
Leaf Color	"	Seed Shape	"
Leaf Size	"	Seedling Pigmentation	"

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data.

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/POD
				CM Width	CM Length	% Protein	% Oil		
Submitted	122	1.2	85	7	13	40.5	19.0	19.0	2.8
Hodgson 78 Name of Similar Variety	124	1.5	83	6	11	39.3	20.0	17.4	2.7

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBT1-A₂ in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

EXHIBIT E

STATEMENT OF THE BASIS OF THE APPLICANT'S OWNERSHIP

SOYBEAN: 'KG 70'

PV No. 8500024.

KING GRAIN, U.S.A., INC.

July 1, 1985

The variety for which Plant Variety Protection is sought was developed by Dr. N.R. Bradner an employee of King Grain. By agreement between the stated parties, all rights to the soybean variety 'KG70' were assigned to King Grain and no rights to 'KG70' are retained by the employee.

